

Grant Writing for Research on Low Incidence Disabilities.  
Week 2 -- Research Plan and Assembling your Application

Rob Ochsendorf:

Great, thank you, Frank. This is Rob Ochsendorf with the National Center for Special Education Research. Thank you all for joining us again. This is the second of a two part mini-series on grant writing for research on low incidence disabilities. Last week, we hit quite a bit on theory of change and some other issues. And now, this week, we're going to focus almost exclusively on the research narrative and how to put together a strong research narrative for your proposal and for the reviewers. As Frank said, if you have questions, please use the chat function. And in order to see the captioning, you need to go into the media viewer window. And the captioning is there. The captioning is on and working. So let's just jump right into it. Kristen and I are going to be going back and forth a little bit as we go along, but we're going to spend most of today talking about the research narrative. And then hopefully at the end, we'll have some time for additional questions.

So your task in putting together a strong research narrative is to be clear, concise, and well-reasoned. Build the reader's confidence, that you have the knowledge and skills to complete the work that you're proposing to do. Reviewers generally are looking for applications that present plausible, doable, testable, and meaningful research. So be sure that you convince the reviewers on each of those points. And we'll talk about some ways to do that. One of the things that we often hear in talking to reviewers and getting feedback from reviewers is that they complain about the lack of clarity in the proposals that they read. And here are some examples, where you could be more clear.

The significance section can sometimes be framed as too general and not specific enough to the problem that you're presenting. A lack of detail regarding the intervention, the development of it, and the data analysis. So be sure that you're very clear on what it is that you're proposing to develop, how you'll do it, and then, how you'll analyze the data along the way. Sometimes in proposals, we see a lot of use of jargon. And assuming that readers or reviewers have certain levels of knowledge and try not to, as much as possible, make those assumptions about what your audience knows and understands about a content area that you are likely to know a lot about.

And then, poor writing, issues of grammar and awkward constructions. You know, perhaps the proposal doesn't flow that well from one sentence to the next, or one paragraph to the next. So make sure that you're paying attention to those issues as well, that the proposal is carefully put together and flows logically, and makes sense from a reader's standpoint. So some things to consider here, some questions to ask yourself. What are you proposing to study? Why is it significant? Those kinds of questions all go into the significance section. Why should we care? What is it that you're going to do? Moving on, what will you do and how will you do it? That's all part of the research plan.

And then finally, why are you the best person, or why is this the best team to do this work? And will you have what you need to conduct the research? And those are issues related to personnel and resources. So these are kind of overarching general framing questions that you can ask

yourself as you're preparing a proposal, and then, these are questions, frankly, that reviewers are asking themselves as well, when they're reading your proposal. Okay, so now we'll get into the how of what you propose to do. And this is the research plan section. Here's a nice little quote from this book. And we'll include the citation at the end. "The research design of a study is the blueprint or plan that describes the way in which the study will be organized, the variables that will be measured, and the data collection and analytic procedures that will be followed."

And I just want to remind folks that after this presentation, we will be emailing all of the registrants a copy of these slides. So don't take pictures of the screen with your phone or anything like that. We'll get you all the slides at the end of this, promise. So the research plan, describe the work that you intend to do. Make sure that it is aligned to the significant section. So in the significant section, if you say that you're going to develop this great intervention because there's a real strong need for one in the field, and then, your research plan is nothing about that development process, then those two things are not aligned. So make sure that these two very important parts of your narrative are well aligned. And then, show the step by step process for how, for example, under development project, how you will go about developing the program.

So I'm going to spend a bit of time now on issues related to the setting, the population, and the sample. Please be very specific in your proposal about where you'll be doing the research, all the relevant settings, if you will, in terms of school sites, other places in which you may be gaining access to research subjects. I'd be very specific about the population that you are addressing. If you're focused on low vision or blind, or deaf and hard of hearing, just be very specific about what those inclusion and exclusion criteria are. And then, pay attention to issues of sample size. There's a few more slides on sample size coming up, but yeah, you want to make sure that your sample is adequate to address the questions that you've laid out in your proposal.

Attrition is an important issue. And certainly, with low incidence populations, if you're only -- if your study only proposes to work with, say 40 students or 20 teachers or something like that and there is a real chance that you could, along the way, you could lose five teachers, or you could lose 10 students. And so, you need to talk about attrition, and what your prior experience has been with attrition, and how you're likely to minimize attrition or what to do if attrition comes up, how you might replace subjects who are lost. And if you're using secondary data, discuss these kinds of issues in the data set that you'll be using.

So here is a little schematic showing a somewhat rudimentary logic model or theory of change. And the population here, we're talking in this study, we're talking about pre-K children, basically four-year olds. And so, in your study, you would want to lay out, you know, how you were going to recruit X numbers of these students into your study, where they're going to come from, what the inclusion criteria are going to be. Are these going to be students who are identified with some sort of disability at the age of four? And so, you just want to be very specific. And so, this schematic shows how the participants fit into your theory of change.

So you'll want to identify the places that you'll be doing the research, the population that you are addressing, and the sample that you're drawing from your population. If you're using secondary data, discuss these issues for the data sets that you'll be using. We see folks proposing to use like

NLST 2 data sets, or maybe ECLS. And you'll want to talk about, you know, in those very large national data sets, how are you going to identify the sub sample of students that you're interested in. And so, the reviewers are going to want to see quite a bit of detail around those issues.

So with regard to sample size, Kristen and I do not have magic wands that we can wave at your proposal, and say you need X number of participants to make all the reviewers happy. These kinds of things will vary by the goal, by the research question, and by the disability group. You know, if you had very specific questions about sort of is this adequate, or do you think this is adequate, I think Kristen and I would be willing to follow up with you afterwards. We know there are a lot of questions around sample size, especially with projects focusing on low incidence disabilities, but you know, in my experience sitting in on review panels over the years, certainly sample size has come up, but more often than not, it's reviewers asking questions about can they gain access to the sample that they say they're going to have, right?

So if you're say going to have 100 kids with low vision or 100, you know, students in grades 5 through 8 who are blind, they may not have an issue with the number, but they may have an issue with your ability to believe that you can recruit that many students. And so, providing letters and providing your prior experience with recruitment, and demonstrating your connections and your access to these kinds of samples will really help convince the reviewers that you sort of know what you're doing. And you can get the sample that you say you need. So that's the more pressing issue with regard to sample size.

So some strategies for helping to build a sample. You could include start up time at the beginning of the graph. So you could have for the first four, five months, we're really going to press hard and go at issues of recruitment for the project. You can build partnerships around the country with our other universities, schools, and districts, organizations focused on particular groups, program coordinators, and Part C and Part B state or district coordinators are all good kinds of relationships to have to be able to demonstrate in your proposal that you sort of connected and plugged into the right groups that will provide you access to the sample that you need.

Some other recruitment strategies for certain studies, you could look at certain publications, periodicals. You could look at fliers in certain doctor's offices or hospitals, advertisements, or you can contact schools ahead of time to talk to parents, and hand out flyers in that kind of a setting. I'm going to get into a little bit -- okay, so that was sample and setting. And I'm going to get into a little bit of measures here. So going back to that theory of change schematic that I presented a few slides ago, the relevant aspects of your project set will need to be related to measures or all of, you know, anything where you're talking about outcomes, proximal and distal, you'll need to have measures proposed to get at each of these constructs that you're interested in.

So positive attitude for school, improved pre-literacy skills, appropriate school behavior, school readiness, and cognitive gains in kindergarten. So presumably with each of those, you would have at least one, maybe two different sources of data to point to, to make your case that these kinds of outcomes were improved. You can use a variety of measures. More sensitive measures are often good for development projects, where you are looking for change on particular skills.

And so, sensitive measures can be quite helpful. Distal measures can be good, too. Perhaps distal measures could be included towards the end of your project after you've developed what it is that you propose to do. You could include sort of broader outcome measures, and then measures of broad interest to educators as well.

So for the measures that will be included, make sure that you describe the technical adequacy of those measures. So the reliability, validity, and the relevance of that measure for the project. Do not include measures that are not linked to research questions. You wouldn't just throw in extra measures just because. If it's included in your study, it should be included for a very specific purpose. And that should be well supported in the proposal. And be mindful of issues of multiple comparisons if you've got lots of different outcomes that you're looking at reviewers may comment that there could be an issue of multiple comparisons. And you may want to either correct for that, or try to minimize that hazard, so to speak.

So some questions to ask yourself and your team and you put together your proposal, are you using pre-existing measures or ones that you have developed? What is the strength of using prior measures? And what is the strength of using your own? And so, you want to be able to express that clearly in the proposal. If you're proposing to use your own measures, or ones that you're going to develop as part of the project, then you should be very clear about why you need to do that, and maybe there aren't good enough measures out there. And so, you just need to make that case to the reviewers.

I think, in my cases, reviewers like to see the use of pre-existing measures, but it's not always possible. And so, it just depends on the situation. Are you using a range of measures? And think about what the strengths are in terms of using a whole range of measures from proximal to distal. And so, I think in general, reviewers like to see that as well. Other measures that -- to consider. If you have a gold 2 project, and you're describing an iterative development process, you need to think about the measures that will inform the revisions to the program. And so, that process is critical and sort of highlighting for the reviewer exactly how you will include these measures along the way, to inform the revisions that you make to the program that you're developing.

A lot of times, we'll see proposals just described sort of a generic, iterative development process, but they don't get into the details of, you know, if they observed this in classrooms, then they will go back and revise the program, based on that data that was collected. Maybe their user log, maybe it's observations, maybe it's interviews, maybe it's focus groups with students. And whatever the case may be, you just need to be very specific about what that iterative development process will look like, and how those measures will inform revisions to the program. Other measures include measures of fidelity of implementation, as well as qualitative measures, which could be surveys, observations, focus groups, interviews, and logs. And these are all quite useful for many of our proposals.

Okay, just to wrap up here on measures, can you have too many measures? These are things to ask yourself. You probably can have too many measures, yes. So think about judicious use of resources. You don't have unlimited funds here. So what are the critical things that you need to be measuring and how are you going to most efficiently measure them? Is it better to have more

proximal measures or more distal measures? And probably as I've mentioned, a nice mix of those is good. And it's good to think about your research goals and the focus of your proposal when you're thinking about which kinds of proximal measures you need, and then, which kinds of distal measures you need. Do you need to know all of your measures before you start? I think the more specific you can be on that point, the stronger your proposal is going to be. Reviewers generally don't like there to be too many question marks about what the measures are going to be, that sort of thing should all be pretty well specified in advance.

Okay, I'm going to pause here because there are a couple of questions. And then, I'm going to turn it over to Kristen, who's going to go over some slides related to research design. So the first question says with theory of change and narrative, should we only include outcomes we will be specifically evaluating? Or is okay to include long term distal effects that we will not directly be assessing, but that are likely linked to proximal effects? Yes, the answer is yes. Yeah, do you want to say more on that?

Kristen Rhoads:

You would want to be clear that which outcomes you will be evaluating during your grant period, but it is very common to see a theory of change that links to long term or distal effects that you may expect two, three, four years down the line, but the grant period is not long enough to measure what those effects might be, but there's some literature that shows that the outcomes that you're measuring are linked to what you expect the distal effects would be.

Rob Ochsendorf:

And then, another question --

Rob Ochsendorf:

The question says is there a preference for group designs over single subject designs. And are group design protocols more likely to be funded? And Kristen's going to get into issues of research design now. And so she will address that question directly.

Kristen Rhoads:

It's a great question for what we're moving into. You'll see in the slides that I'm going to show, next 20 or so slides, that there is preference for group designs when appropriate and when possible, if you're able to recruit a large enough sample. Our recommendation would be to start off with your research questions though, and then choose the design that would help you best address your research questions. The design varies by goal. The design may vary by your student groups of interest and your ability to recruit large samples. It will also vary by the skill that you're hoping to teach the children. But your research question should be what's driving the design that you choose.

I'm going to move through the five research goals that are listed in the request for applications very quickly. Then at the end of those five goals, we're going to spend some time talking about single case research design and how they fit into the goal structure. The exploration goal is to explore malleable factors that are associated with improved student outcomes. The design

chosen could be primary or secondary data analysis, a meta-analysis, or some combination of those three types of analyses.

In your description of your exploration project, again, you'll want to be very clear, if you're doing primary data collection, about how you will sample the groups of students that you're proposing for your research study. You'll want to be very specific about the data that will be collected, how you will collect that data, and how you will code and analyze the data. With primary and secondary data analysis being very descriptive about data analytic strategies that you will be proposing to use and looking at whether there are any mediators or moderators as part of your analyses. You want to be clear about what you anticipate the mediators or moderators to be in the work that you're doing.

Okay, so moving on to Goal 2, which is the development and innovation goal, in 2016, only NCSER is supporting the development and innovation goal as part of our request for applications. The research design should focus on the iterative development process. So what you may be choosing to develop--- the whole intervention, or pieces of the intervention, testing them out, revising, trying them out again, revising. You could be developing the whole intervention at once, or you may be doing smaller pieces of the intervention at different points of time. You'll want to study whether the intervention can be used in authentic education settings. And you'll have a pilot study to show the promise of the intervention as compared to a similar group.

This gets back to the question that was asked earlier. It refers to the pilot study. And it's in the request for applications. You will see the types of pilot studies that can be proposed: powered and underpowered RCTs, single case studies, and quasiexperimental studies.

Okay, so the next goal we've combined the goals 3 and goal 4 for the efficacy of replication and effectiveness, effectiveness being goal 4. And efficacy and replication being goal 3. In most instances, randomized controlled trials are favored.

We ask that you randomly assign children, students, teachers, or schools to treatment or control groups. And we ask that you would describe your unit of randomization and justification for your procedures for assignment. If you choose to do a different type of research design, like a quasi-experimental design, or a single case design, you would have to provide justification for that choice of design. You would describe who your treatment groups are, what you expect your treatment group to experience, and what you expect your comparison group to experience. You would be encouraged to collect data on what were the instructional activities that were taking place in the comparison group classroom.

We ask that you provide a power analysis, and you would show how you would calculate power and the assumptions that you're using for your power analysis. You will also collected data on fidelity of implementation in both treatment and control groups. So are the teachers in the treatment group implementing the intervention as planned and as expected? And what are the teachers in the comparison group doing? You'll want to document that as well. If you are planning any mediator or moderator analyses, you should describe what you expect the

mediators and moderators to be. And any potential contamination issues. So this, again, goes back to explaining the justification for your unit of assignment and random assignment.

So if you were going to assign by classrooms, explain why that is possible and any contamination issues involved with that. Schools, potentially, you're expecting some teachers to talk across classrooms. So maybe schools are the more appropriate unit of assignment, but you'll want to make sure that you address any potential contamination issues, and why you chose your unit of assignment.

In terms of measurement projects, these are the types of things that you will want to describe as part of measurement projects. Your alternate forms. You'll want to describe any horizontal equating you might be doing. If you're doing any vertical equating. How you might be measuring growth. Describe how you want to make sure the test is fair.

And if you're looking at non-student instruments, you might be making instruments looking at teacher practices, for example. You still must validate them against student outcomes.

So here are some common research design issues that we see across all five of the goals, really. Rob had mentioned attrition and missing data. So you'll want to describe what you might expect attrition to be, given your group of students that you're working with, and what you will do to perhaps minimize attrition, and if there's any missing data, how you would address the missing data in your data analysis. Again, Rob had spent quite a bit of time on documenting your access to and permissions to collect and use data. Through letters of support is probably the best way to do this, to show you have access to the sample that you are proposing to use and that you have the permission to collect data and use it as part of your research program.

Okay. So the reviewers want to see that you've described all statistical considerations related to this study. Specifically, your data analytic strategy, the statistical test you will be using, power, if it's appropriate, and then your sampling considerations. You want to show how your analyses enable you to answer all of your research questions. You may have different analytic strategies that you're using, according to the different research questions as part of your study. In many cases, you should show your analytic model. Identify the coefficients of interest, what they mean. Models are important to see, specifically, for your primary research question. If you have any clustering of students nested in classrooms, for example, you'll want to make sure that you address that. We talked about describing a plan for missing data.

Check for baseline equivalence at the start and attrition bias. Particularly if you're doing a quasi-experimental design, you'll want to show that the treatment and comparison groups had equivalent scores on pre-tests at baseline. And then, you also want to show your sensitivity tests of your assumptions.

So I'm going to talk next about single case research designs. These designs are particularly important when you're talking about conducting research with students with low incidence disabilities. You saw earlier that in general, the request for application shows a preference for group designs, but group designs may not always be appropriate with given populations or research questions. So I think probably one of the main goals that we want you to take home

from these two webinars is that we encourage you to use single case research design, if they fit the work that you're doing. We don't want you to shy away from them.

So IES has had some recent efforts related to single case research design. First are the What Works Clearinghouse design standards, you'll want to be familiar with those standards if you're proposing to use single case designs as part of your development study or efficacy study especially. And so, you'll see that the language in the request for applications is linked to the single case design standards in the "What Works Clearinghouse." We have methodological grants that are focused on single case designs. Those grants are mostly focused on data analysis and methods for determining effect size. These grants are focused on improving methodological and analytical techniques related to single case design.

We had a technical work group somewhat recently on single case designs. You'll see that there's an increased focus in single case designs and the NCSER request for applications in particular. There are some technical papers on single case designs being produced by the Institute that are in progress. And hopefully, I think one of them is expected to be released soon by IES. And then, annually, IES hosts a single case design summer training institute for a week, usually in Madison, Wisconsin. A group of expert researchers in single case design describe the designs, cutting edge analytic techniques. I think it really helps researchers design their own studies, using single case designs as part of their research plan.

To give you some idea of what's happening at NCSER, you'll see we have quite a few studies that are using single case design. You'll see that predominantly the development work is using single case design. And that can be part of the development process as principal investigators are developing their interventions. And some use single case design as the design for their pilot work to show promise of the intervention for improving outcomes. Two efficacy studies are using single case designs. And in these instances, the designs are not the primary research designs, but they're complementing the group design that had been proposed. A measurement project is using single case design. We also fund the Early Career training topic, which we have not talked about during these webinars, but you could certainly propose single case designs as part of that work. Two of our research and development centers, our very large R&D center grants, are using single case designs. And the projects total over \$40 million. And that does not include the R & D centers.

Okay. So last week, we talked about the IES grant programs and research objectives. They're shown here again as a refresher to develop or identify interventions, identify what does not work, and understand the processes that underlie the effectiveness of the interventions. And so, if you look at the first objective to develop the interventions, single case design can fit in the development, efficacy, effectiveness, and measurement goals. In the effectiveness and the measurement goals, they would be used to complement the designs. In the development and efficacy project, the single case design can be used to complement the design or as the primary methodology. In the development, we talked about using it as part of the iterative development process, or as part of the promise evaluation. In efficacy, it can be used, again, to complement the group design, or as the primary design for your efficacy testing of your intervention.

Okay. So if you were looking at the objective of to identify what does not work - the efficacy testing- single case designs could be used as the primary design for efficacy. Or single case design can complement efficacy and effectiveness projects, which may then in turn lead back to a development project, given your findings, and where you could use single case design, again, as part of the development process or as part of the promise evaluation.

The third objective to understand the processes that underlie the effectiveness of the intervention. For this, you might propose exploration work that can also include single case designs.

Single case design can be used as the primary design or to complement the primary analysis and research design. You may propose to do meta-analytic work that includes single case designs as part of the meta-analysis. Again, as a reminder, single case design can be a primary design in development and innovation, and efficacy and replication projects for proposals to the National Center for Special Education Research. So we've already covered this, that the single case design can fit in any of one of these pieces, as part of the development, as part of testing whether the intervention is feasible and usable, and as part of the pilot data on promise, seeing the potential promise that the intervention has on student outcomes.

You see the language in the RFA that the design should meet the standards for an individual single case study set by the What Works Clearinghouse. You'll want to make sure that you read the What Works Clearinghouse document carefully, and see the requirements in terms of design chosen, numbers of data points that you would need to collect at baseline and during intervention. You'll want to see the standards related to interrelated reliability at different phases of baseline and intervention implementation. You'll want to make sure that you meet the studies for the different types of single case design. Different single case designs have different criteria as part of the What Works Clearinghouse. So a multiple baseline design may have different criteria set out, compared to a multiple probe design, compared to another type of single case design. So you'll want to make sure that you understand those designs carefully as they relate to what the What Works Clearinghouse standards specify.

Okay, so we talked about the iterative development process and how single case designs work well as part of that process. And this is a reminder of the efficacy and replication goal. So evaluating whether intervention is efficacious, replicating an intervention that already has evidence of being efficacious, gathering follow up data or analyzing historical data, just a reminder of the efficacy projects you could propose. And here's the language in the request for application, saying that single case designs can be used to demonstrate a causal or functional relation between the two variables. The RFA includes the definition of what the case is. We typically think of a single case as a participant or student, but you could also consider the case to be the classroom or the community.

For definition of what a single case experimental design is not, it is not a descriptive case study. The single case design will have repeated systematic measurement of a dependent variable before, during, and after manipulation of an independent variable. In this case, the independent variable is the intervention. You can think about using single case experimental designs as a complementary method to further understand what's happening in your randomized controlled trials. So as an example, you can implement a complementary study using single case designs to

find out how the intervention components may affect outcomes for children who aren't responsive to the intervention.

Stepping back for a minute, if you were going to propose to use a single case design for an efficacy study as your primary design for that efficacy study, you'll describe a research plan that meets the WWC evidence standards with or without reservations. You will want to provide a strong argument supporting the use of single case experimental design as opposed to randomized controlled trials. You'll want to include outcome measures that are not strictly aligned with the intervention. So Rob had talked about the continuum of proximal to distal measures. And you'll want to describe any quantitative analysis that you will be doing in addition to visual analysis for the resulting data.

We thought it would be helpful to show you actual reviewer comments from studies that had used single case designs. In this comment, the study was using single case design and group design, a mixed methodological approach to the research. The reviewers appreciated that the combined use of the two designs that would provide for more information and a stronger study and richer information on the response of students as they progress to the intervention. So this is a good example -- this would be a good comment to see from our reviewers. A bad thing to see from the reviewers, again, as Rob described earlier, a lack of detail. So reviewers really want to see detail describing what your design will be. This includes identifying your sample, how you'll select participants, the number of cases that will be part of your research design, how many students are you planning to intervene with--- or schools or classrooms are you planning to intervene with.

You'll want to describe your settings. So where this research will be taking place. You could think of settings in terms of broad setting. We had the question earlier about the state, so the setting could be describing a particular state. It could be describing a particular area of the state. Suburban or urban or rural part of the state. You could be more specific and say your setting could be the general classroom. Or it could be a special education setting. Or it could be a pullout setting. You'll describe where the intervention will be taking place.

You want to describe a number of data points per phase. Again, the What Works Clearinghouse has pretty descriptive guidelines of the number of data points that you should measure per phase and when the measurement of those data points should take place. So you want to make sure you follow those standards and guidelines. You'll want to describe how baseline will be established. This relates back to numbers of data points, but then also if there are any changes in performance during baseline, is change of performance indicative of the student improving or something else.

You want to have information about measures, data collection, and analyses, including coding and determining interrater reliability for data points across the different phases of a single case design.

And then, going a little bit further into comments. These are comments that you never want to see. Further justification for the design is needed. You should be explaining your justification

for the design from the outset. There should be no question as to why you've chosen to use single case design as part of your research program.

The link between the design and research questions needs to be clearer. It is not clear how the design would answer the research question. I think this is a comment that could be applied across any type of research design that you choose to use, that the research question should be clearly linked to the methodology that you've chosen and to be clearly linked to your analysis plan. The design does not match the intervention or proposed hypothesis. The last bullet point would be a nice segue into the next section on personnel.

You'll want to make sure that if you propose to use single case research design, there's someone on represented on your team who has expertise in using that design and analyzing the data from that design. I am going to pause here to see if there are any questions related to research plan or single case designs. I'm not seeing any. Okay, so I am going to turn it back over to Rob who is present the last two sections of the research narrative; the personnel and the resources.

Rob Ochsendorf:

Okay, great. Thank you, Kristen. So we will move right into talking about personnel. We've hit on the what, the why, and Kristen talked a lot about the how. How will you do this? Now we get into who and with what. There is one question here about, "Is external evaluation appropriate or allowable for research design analysis?" We typically don't see external evaluators on our projects like we do at some other funding agencies. But, you know I think in general for go-to projects, like development projects, I think more rare you see external evaluators. I think the idea should be that you're the team, you develop the intervention, you do the pilot study. There is really no expectation from the reviewers that there will be an external evaluator.

Rob Ochsendorf:

Yeah. Okay, so personnel. The purpose of this section is to convince the reviewers that your team has the skills and experience to implement the proposed research. It should be aligned with the significance and the research plan sections. You should link each person and their expertise to the role in the project. When you talk about the personnel, don't just talk about their -- generally their, their titles and, you know, all their credentials. You want to talk about their credentials in relation to what you're proposing to do, exactly. So be specific. And then show every aspect of the project has a person with the expertise and the time to do it.

The types of personnel needed will vary by the goal and the topic and by the research questions. But, every application really should include substantive experts on the content matter at hand, methodologists and statisticians, as well as identifying project managers who will sort of run the project. So if you are proposing to do work in math, for example, then you want to make sure that there are people on the project who are considered expert in math, certainly helpful if they are expert in math for the particular sub-population that you are interested in. But, these are things to consider when you are assembling your team.

The biographical sketch part of the proposal, these are like abbreviated CVs. They are intended to supplement information that's provided in the personnel section, so each biographical sketch

is four pages per person. And try to include information that's specific to the project, if you have a PI who's, you know, research is kind of wide ranging, then you would want to, you know, tailor that four page CV to the specific aspects of the projects that are relevant. Sort of what they'll be doing on the project and what specific experiences or expertise they have that they will bring to bear on this particular project. Be sure to highlight that in the four page CV. You know, many investigators have quite long CVs, you know, maybe 10, 15, 20 pages. And so to condense it down into four, you need to think carefully about what kinds of things you want to highlight in the CV and what strengths need to be pronounced for the reviewers.

There's a question here about the specific format for the biographical sketches, should they be in a paragraph form? Or structured more like a CV? I think we see them more generally structured like a CV; just a short CV is what we see. In the narrative, in the personnel section, that's where it's going to be more in paragraph form. So typically what we see under personnel is, for each individual identified on the project that you would have roughly have a short, but meaty paragraph in terms of what they're going to do specifically on the project. Hope that's helpful.

You're also able to -- for each person, you are also able to attach a current and pending support list. So this is usually a table, which will show current and pending grant support, one for each person. And this is one page each. So, you know, you'll show all the projects that you're currently involved in and then projects for which there's pending grant support. It just helps to provide the funding agency and the reviewers a sense of the time that you have available to sort of take on another project.

The time commitments do matter, I mean reviewers will comment from time to time on, you know, the fact that somebody is only say four or five percent FTE, when in fact the proposal lays out a fairly substantial role for them and so think about the time commitments in terms of calendar year, versus academic, plus summer. Some of your institutions like to divide up the FTE in terms of academic year and summer calendar year and, I don't know. Our preference is to see it in the calendar year form, but it's not a huge issue. These issues can kind of be clarified. And then show it as a percent effort for the year. You'll want to demonstrate that every aspect of the research has been allotted enough time from one of the experts. So, you know, if you're proposing to do work in reading, and you're proposing single case design methodology, but you are also proposing some measurement development along the way, right there are three areas where you're going to need to demonstrate that your team has sufficient expertise to cover all the things that you're proposing to do. So, and we just pay attention to all the different aspects of your research project and make sure that they are, sort of, aligned with particular individuals; who's going to do what, or who's going to take the lead for what.

So other considerations for the personnel. It's useful to show publication track record, past successes in evaluating developed interventions or if you've had similar experience doing Goal 2-type projects then that's going to be quite useful to include in the description of key personnel. Sometimes it's helpful to demonstrate some level of objectivity if folks have a financial interest in the intervention that's being evaluated, that can be an issue at times. So for senior researchers who've been at this, please show adequate time to be PI and make your credentials clear for the project at hand. For more junior researchers, show that you have adequate expertise to do the

work and manage the project. It may be helpful to include senior persons on the project to turn to for advice, and I'll show you some examples of what we mean by that in a minute.

So here are some sample reviewer comments on junior researchers and these are actual things that folks have said in response to a given proposal. "The members of the advisory panel have been involved in the design and conduct of many experiments and will be of great help to the P.D. and the development of the interview protocol, in the analysis phase of the project and interviewing papers stemming from the analyses." So here's an example where a junior researcher included more senior researchers on an advisory panel and talked specifically about how those advisory panel members would assist the junior researcher in accomplishing the goals laid out in the project.

You know, it's one thing to name an advisory panel, but it's very helpful to describe specifically what the advisory panel members will do, how you will lean on them and make sure that their time commitments are commensurate with sort of their -- you know, your level of service that you expect from them. If you're only having them in for one day a year, but you're asking them to do -- but, your proposal stipulates that they will be doing all sorts of things so the project then, the time commitment doesn't really match the duties that they have on the project and so make sure that those things are consistent.

Here's another comment sort of, of a different vein. "Given that the PI has not run a large federal grant and does not appear to have formal training in reading and/or reading interventions developed for average children, I would recommend that a senior researcher who has expertise in reading RTI and have received funding in the past be added to the grant." So here's a situation where the PI was relatively junior and did not have more senior advisors on the project and this reviewer felt that it helped the project to add these kinds of folks to the grant.

So a lot of times what we see is that a research team has fairly good coverage in one area and sort of less coverage in another. Think about these kinds of things when you develop your proposal. If you could add two types of researchers to your team, what type would they be? So think carefully about the expertise of the current team and what you may be lacking. And then, where might you find these individuals? Are they likely to be on your campus or at your institution? Or will you have to sort of have to search elsewhere to find the expertise that you need?

Yeah, okay so we have a question here about personnel. So one of the partners is a technology firm and the technology firm is listing the President as the key personnel, but in many cases they have sort of supportive folks who will be doing the work on a project. Is it okay to include just the team leaders?

I don't know. Probably okay, but, you know, if the President of the firm has particular expertise in this area, you may want to highlight that. You would also want -- I think as a reviewer, I would maybe want some assurance that the team lead was actually going to be involved in reviewing deliverables and reviewing work products that are coming out of that part of the project. So I think you just need to convince the reviewers that there is adequate expertise in the folks that are going to be doing the work and overseeing the work. I don't know -- you can

follow up with me afterwards if you want to talk in more detail. I mean, a lot of cases it will depend on who this President is and sort of how involved they will be in the project. Maybe there are other people that it makes more sense to highlight in the proposal. So perhaps you could follow up with me afterwards and if I haven't answered your question, we can try again.

Okay, so I am going to move on to the resources section. So the purpose of the resources section is to convince reviewers that your team has the institutional resources needed to implement the proposed research. So here you want to demonstrate that the institutions have the capacity to support the work and please do not use the University boilerplate language about, you know, how big your library is and how many computers you have on campus. Some of that stuff may be useful, but more likely there're going to be aspects of the institution that are more specific to the project at hand that will be more useful for reviewers. I think when boilerplate language is included that reviewers notice that and I think they don't find it very helpful.

You should show that all organizations involved understand and agree to their roles and you need to demonstrate strong commitments to the schools and districts and this is typically demonstrated with strong letters. Strong, specific letters that are tailored to the project. And if you've received a prior grant award for similar work, you want to describe the success of that work. In the dissemination plan, please describe your capacity to disseminate information, the audiences that you will expect to benefit, and the ways in which you intend to reach these audiences. Okay, I'm going to turn it back over to Kristen. We have about eight or 10 more slides to go here, we are almost finished and then maybe we can have some time for questions.

Kristen Rhoads:

Sure. I'll be talking about a couple other sections of application other than the narrative that are really important as you are pulling your application together. Two sections are the budget and the budget narrative and the appendices.

With the budget, you'll want to provide a clear budget and narrative for the overall project and for each sub-award. You will see that the request for applications has specific budget requirements for each goal --there are maximums listed for the overall project. For a Goal 2 study, you'll see a maximum listed for the pilot study to show promise for the intervention. You'll want to ensure that there is agreement among the research narrative, your budget, and your budget narrative. So, for example, your research narrative may have included particular outcome measures, or surveys that you're hoping to do, but there's no item that corresponds with those outcome measures or surveys in your budget or budget narrative. Or, for example, you may have a key person listed in your research narrative, but that key person is not budgeted for -- in your budget and budget narrative. So you'll want to make sure that there's consistency across those pieces of your application.

You also want to remember to use the appendices when relevant. And we had a question last week about, "What were the appendices?" And, "How many pages were they?" So we have these two slides here for that person. Appendix A has a three page limit and it is required for re-submission. It is the opportunity for the applicant to respond to previous reviewers to show what changes you have made to your research proposal in response to the comments from the previous year. If you are re-submitting, you are required to use the three pages in Appendix A. I think

last week we talked about how project officers across the institute can read application materials before you submit it to IES for the official review. So this is another area where project officers could read prior to your official submission. We can comment on the reviewer comments and how you responded to the reviewer comments in Appendix A. There is no right or wrong format for Appendix A, some people respond to comments reviewer by reviewer. Some people respond to comments by the four parts of the application narrative; the significance, the research plan, the personnel, and the resources. Some applicants may respond in order by the comments that seem to be most consistent across three reviewers. There is some flexibility in how you use those three pages for your re-submission.

So Appendix B has a 15 page limit. This is the place where you can put figures, charts, and tables, and examples of measures to support your application narrative. Appendix C is the opportunity to use examples of materials that you're going to use as part of your intervention or assessment. Appendix D has no page limit. It is where you will put your letters of agreement from your partner sites. This is the place where you can show that you have access to this sample that you are proposing to have access to. Appendix E is where you include a data management plan only if you are submitting a Goal 3 or a Goal 4 project. So if you're submitting an efficacy or effectiveness project, you will use Appendix E. Any of the other three goals will not need to have an Appendix E. So exploration, development and measurement goals do not have to have an Appendix E.

Okay we went through that pretty quickly. We have a couple of slides about submitting your application. The due date is August 6th at 4:30 p.m. Washington, D.C. time for the Special Education Research grants program. If you submit your application at 4:30 p.m. and one second, we will not accept it for review. You'll want to make sure that you start early, we recommend that you submit your application a couple days early to ensure that it is submitted on time.

The application package is available on the Grants.gov website and if you are recommended for funding, the start date of your grant will be somewhere between July 1st and September 1st of 2016. We have the requests for applications currently available, the application package is currently available. Here are the two websites where you'll find those. We recommend that you know your University's procedures, so you may wish to contact your sponsored program office to see if they have any internal rules or deadlines for submitting applications. You'll want to make sure to follow those rules and submit your application to the sponsor program's office by the internal deadline.

So things can go wrong, so the earlier you start the submission process, the easier it is to avoid or fix disasters. So there could be things that your institution isn't registered properly in [www.grants.gov](http://www.grants.gov). I'm guessing that for most of you on the call, your institution is most likely to be registered properly on [www.grants.gov](http://www.grants.gov), but you may want to check to make sure. Sometimes you may have an application that has improper file names, corrupt files, wrong types of files, and so applying early, or getting the materials to sponsored programs office early may help you to see if these things have happened and give you time to correct them. There could also be delays in general at your sponsor programs office.

Okay, so we went through those pretty quickly, we wanted to give you a chance to ask us questions before we go. I think we have about 10 or 15 minutes so Rob and I will sit here if you have any questions. If you think of something after 2:30 today, you can feel free to email either one of us and we'll either direct you to the appropriate person within the institute or NCSER or we'll get back to you as soon as possible. Okay.

All right so we do have a question here that's based on funding allocation, "Is it based strictly on quality or do we allocate specific amounts of money for each topic or goal?" We do not allocate specific amounts of money for each topic or goal. So the allocation is based strictly on the quality of the application.

[end of transcript]